

Abstract

A regulator system includes a power device and a sense device. During a normal operating mode, the power device is arranged to deliver current to a load, while the sense device is arranged to monitor the load current. An over-current mode is
5 activated when the sensed load current exceeds a short-circuit current-limit. During the over-current mode, the power device is switched off such that the energy loss is minimized. Once the short-circuit condition is removed, the regulator system returns to the normal operating mode. The sense device is coupled to the load in such a way that the quiescent current of the regulator system does not rise with increasing load current. The
10 regulator system is further arranged such that the short-circuit current-limit decreases automatically with increased operating temperature. The described regulator system has significantly reduced energy losses while also minimizing risks of thermal induced device failures during the short-circuit condition.

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Customer No. 23552